

REMARKS

Claims in the Application. By the instant amendment and response, Claim 57 has been amended and Claims 64-90 have been added to this application. Accordingly, Claims 30-36, 39, 57, 60-61 and 64-90 are active in this application. Reconsideration is respectfully requested.

The Examiner's Rejection Over *Burdick* and *Boatman*. The Examiner has rejected Claims 19, 23, 25-36, 38-40, 43-47, 50-52 and 57-63 under 35 U.S.C. § 103(a) as being unpatentable over *Burdick* in view of U.S. Patent No. 6,315,061 (“*Boatman*”). Claims 19, 23, 25-29, 37-38, 40-56, 58-59 and 62-63 have been cancelled from this application. The rejection of Claims 30-36, 39, 57 and 60-61 is traversed.

The claims of Applicants are directed to the thickening of brine during the recovery of oil and/or gas from a subterranean formation in order to alleviate fluid loss. The Examiner acknowledges (paragraph 6 of FINAL Office Action) that “*Burdick* does not expressly disclose a method for thickening a brine during oil/gas recovery by introducing the suspension to a brine or using a mixture of sodium formate with potassium formate and/or cesium formate.”

The Examiner relies upon *Boatman* to cure the deficiencies of *Burdick*. *Boatman* only discloses use of a formate salt to adjust the density of the aqueous phase of a ballast fluid. A cellulosic polymer is further used to adjust the carrying capacity of the fluid. In contrast to *Boatman*, Applicant uses the formate salt solution as a carrier fluid for the cellulosic polymer in order to thicken brine. *Boatman* does not disclose thickening of a brine during the recovery of oil and/or gas by use of a cellulosic polymer suspended in an aqueous formate salt.

The drilling mud of *Burdick* and *Boatman* do not function as a fluid loss pill. A fluid loss pill is not synonymous with a drilling mud. One would not predict that a drilling mud could or would function as a fluid loss pill. In fact, *Burdick* recognizes the unpredictable behavior in aqueous solutions containing various salts. *See*, for instance, the bridging paragraph of columns 2 and 3 of *Burdick*. In fact, *Burdick* concludes that the behavior of a given polymer in an aqueous salt solution cannot be predicted. Not only is the behavior of a given polymer unpredictable in one brine versus another brine, the behavior of different polymers in the same brine cannot be predicted. The behavior of an aqueous salt solution containing a polymer would likewise be different when used as a drilling mud versus used as a fluid loss pill. *See*, paragraph 10 of Declaration Under 37 CFR § 1.132 of Daniel P. Vollmer (*Vollmer Declaration*”), attached hereto.

Typically the density of the brine being thickened with a fluid loss pill is greater than the density of the formate salt cellulosic suspension of the fluid loss pill. Thus, the objective of Applicants' invention is not to increase the density of the brine but rather to thicken the brine. Adjustment of the density of a brine is not equivalent to thickening of the brine. *See*, paragraph 12 of *Vollmer Declaration*.

Further, it is recognized in the industry that fluid loss control provided by a drilling mud damages the formation and thereby prevents suitable production from the well. In contrast, fluid loss control provided by a fluid loss pill protects the formation and allows for maximum production from the well. Fluid loss capacity of a drilling fluid is dependent on mud solids. The fluid loss capacity of a fluid loss pill is dependent on viscosity and, when added, any removable solids to augment fluid loss control. *See*, paragraphs 10, 14 and 15 of *Vollmer Declaration*.

The viscosity of a drilling mud is also dramatically less than the viscosity of a fluid loss pill. Typically, the viscosity of a drilling mud does not exceed 50 or 60 cP when measured on a Fann 35 at 600 rpm. The viscosity of a fluid loss pill is typically greater than 200 cP and most desirably greater than 300 cP when measured on a Fann 35 at 600 rpm. A drilling mud has a viscosity which is only sufficient to prevent drilled cuttings and other mud solids from settling. The viscosity of a drilling mud must be minimized in order to allow easy circulation into and out of the wellbore. *See*, paragraph 13 of *Vollmer Declaration*.

In light of such distinctions in viscosity, the drilling mud of *Boatman* would be incapable of alleviating the loss of brine during the recovery of oil and/or gas from a subterranean formation. As such, neither *Burdick* nor *Boatman* disclose or suggest the method claimed in the instant application.

Further, Applicant has added new independent Claims 70 and 84 by this amendment. These claims recite the amount of cellulosic polymer suspended in the aqueous salt solution (Claim 70) and the amount of cellulosic polymer in the suspension (Claim 84). The amount of cellulosic polymer present in the formate suspension of the instant application may be from about 45 ppb (Ex. No. 1) to about 95 ppb (Ex. No. 3). About 0.5 to about 8 ppb of cellulosic polymer is required to viscosify the target brine. If the cellulosic polymer is present in the target brine in an amount less than about 0.5 ppb, the brine could not be thickened to the extent needed to prevent it from being lost into the formation. Amounts greater than about 8 ppb typically do not render a pumpable fluid. *See*, paragraph 16 of *Vollmer Declaration*.

Understandably, the amount of cellulosic polymer in the drilling fluid of *Boatman* is outside of that claimed by Applicants. The amount of cellulosic polymer exemplified in *Boatman* is no greater than 0.13 lbs. This would be an insufficient amount of polymer to thicken the brine. Thus, the product of *Boatman* could not function as a fluid loss pill. *See*, paragraph 17 of *Vollmer Declaration*.

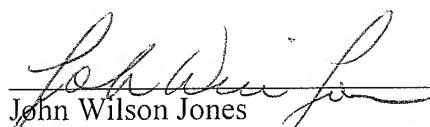
In summary, *Boatman* does not and cannot cure the deficiencies of *Burdick* since *Boatman* is not directed to a method of thickening of brine during recovery of oil and/or gas from a subterranean formation. There is no reason to conclude that a drilling mud could function as a fluid loss pill (or vice versa). The Examiner is therefore respectfully requested to reconsider the rejection of record.

The Examiner's Double Patenting Rejection. The Examiner has further provisionally rejected Claims 19, 23, 25-36 and 38-40 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 3-6 of copending Application No. 10/911,038. Applicant will consider the filing of a Terminal Disclaimer upon indication of allowable subject matter in this application.

Conclusion. In view of the foregoing amendment and remarks it is respectfully submitted that this application is in condition for allowance. Early notice to that effect is earnestly solicited.

Respectfully submitted,

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